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NOSE-BLEED IN ZEBRA ROCK PAINTINGS, ZIMBABWE*

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ABSTRACT

A cornerstone of the argument in an article on "Nose-bleed in Shamans and Eland" (Butler 1997) was the medical evidence that nose-bleeds very rarely occur among human beings during extreme and protracted physical exercise. In this paper, medical evidence is used to support the thesis that certain Zimbabwean rock paintings of zebras bleeding from the nose represent the final stages of a zebra hunt in which the equid's lungs have given way after long and relentless pursuit by a bipedal primate whose lungs do not give way to nose-bleeding under such strain. The evidence is discussed in the context of the following: (1) The prevalence of running down game, particularly in Khoisan societies; (2) Altered states of consciousness, experienced by South African hunters-gatherers; (3) The physical responses of zebra to running down; (4) Conclusion.

INTRODUCTION

This paper owes its origin to a comment by Peter Garlake in a letter of 1 February 1996 addressed to the author.

> There is one peculiar feature of the zebra in rock art - it is characteristically shown head lowered and bleeding from mouth and nose, yet these zebra are never shown hunted or pierced by arrows or associated with hunters. I cannot interpret this.

Horses and Zebras

As the entire argument of this essay depends upon the assumption that the horses and zebras are so closely related that what is true for the horse is true for the zebra, we will devote some space to justifying this assumption.

From the evidence of Rock Art in Zimbabwe, we know that zebras suffer from nose-bleed. It is also common knowledge that horses suffer from nose-bleed.

We know a great deal about horse nose-bleed. Are we justified in applying this knowledge to the zebra? We advance the following arguments.

1. Scientific

   Horses, zebras and asses are all included in one family, Equidae Genus Linaeus Equus. Walker (1983) refers to Bennett (1980) who argues that the horse, quaggas and zebras should be united in a single sub-species.

2. Mating

   Smithers (1983:576) states that Burchell's zebras mate freely with donkeys, producing offspring known as zebdonks. Such hybrids were used in pioneer days in tandem with mules. Donkey stallions also mated with zebra mares (see also Walker 1983).

3. Domestication

   There is ample evidence that the zebra can be trained to harness and ridden, with some difficulty, like a horse. Zeederberg (1971:132) gives a detailed account of training zebras for coach transport in the 1890s, the major effort being to use them on the Pietersburg-Pretoria run. The only difficulty the zebras presented was inferior stamina.

   > This final experiment proved conclusively that zebras could not be economically used for coach transport over long distances ... There was no reason, however, why they could not be used in wagon transport, and many transport riders in the north ... did so.

   But if zebras failed as draft animals for coach transport over long distances in the Transvaal they were used successfully over short distances with light loads in Southern England for the better part of a decade. From 1905 to 1914 they drew delivery vans of the Mazawatatee Tea company, a popular and successful advertising ploy (James 1992).

Fig. 1. Mazawatee delivery van, England.

Baron Walter de Rothschild, the great zoologist, imported Burchell's zebras, which he harnessed simply in a trap breaking them in himself. This was a prelude to driving a four-in-hand to Buckingham Palace, much to his father's fury, who dreaded that the unpredictable beasts might bite or kick royalty. (Rothschild 1983:46)

There is no suggestion here, or in other accounts, that they display unexpected dietary or physiological differences from the horses and ponies which they resemble so closely.

THE PREVALENCE OF RUNNING DOWN GAME IN KHOISAN SOCIETIES

The prevalence of running down a wide variety of animals in Khoisan societies is well attested. Cornwallis Harris, writing in the 1830s, gives ample evidence of regular runnings-down.

> We more than once, fell in with a large party of Coranna's engaged in an attempt to tire out an ostrich on foot, a feat which they are sometimes said to achieve. (1969:59)

Harris himself describes the ease with which the great male eland could be run down within a mile by a man on horseback, ascribing to this fact its extinction in the Cape Colony; by Boer and Griqua hunters who possessed horses and firearms. But he also supplies us with a key corroboration of the practice of running eland down on foot.

> Even the savages who have no horses, not infrequently race them down on foot, and then stab them with their assegaais... (Harris 1969:37; see also Sparrman 1977 Vol. II:162).

This practice continued into the present century. For example the pursuit of a wounded buffalo could continue for as many as four days (Thomas 1950:175). Sir James Alexander, (1858:261-263) gives us a detailed account of a Namaqua, Hendrick, running down a zebra.

> When Hendrick's powder ran short he took a hunting knife in his left hand... and knowing there were zebras in his neighbourhood, he went out to the field to seek them, to their grazing ground, and to run them down.
>
> He paced over the plain glancing at the ground for foot marks, and on each side of him, with his keen eyes. Presently the troop itself is seen grazing near. Hendrick stoops, disencumbers himself of every skin covering which might encumber him, even to his leopard skin cap, and steals as near as he can to the game without being perceived; but the watchful eye of the stallion discovers the hunter, when he leaves the cover of the bushes, and giving the alarm to the rest, the whole gallop off. Hendrick, without putting himself to the top of his speed at first, follows them; the zebras stop to graze, Hendrick running like race horse, with his stomach near to the ground, bounds toward them. Away they rush again... The hunter "sits on their skirts", and relaxes not from his pursuit for a moment; he clears stones, bushes, and other impediments; after three or four miles he is in perfect wind; the ground seems to fly from under him; and, as he expressed it, he was now unable to distinguish the heaven from the earth. The zebras stop and gaze occasionally, as before; but it is now but for an instant, for their enemy is closing with them; he drives them towards a steep face of rock; they hesitate about the means of escape; Hendrick is amongst them in a moment, and seizing one of the striped troop by the tail, he swings it to one side, throwing the whole

> weight of his own body towards the ground at the same time. The zebra falls on its side, when Hendrick instantly plunges his knife into its chest, and then allows it to rise and run off; it keeps up with the rest for a short distance, then gradually falls behind the troop, weak from loss of blood. Its comrades wait for it till Hendrick again dashes forward, repeats his fatal thrust, and if two stabs are not sufficient to stretch the zebra dead on the plain, a third is given, which rolls the beautiful body lifeless on the ground, covered with dust and perspiration. The successful hunter then returns to his huts to send his people with pack oxen to bring home the prize.

Attention is drawn to the following points.

1. Zebra were regarded by Namaqua as normal food.

2. Hendrick's approach is matter-of-fact and expert though old fashioned and is resorted to only when short of powder (*ibid.* :261)

3. The technique is relentless pursuit of animals who are initially confident in their power to escape pursuit from a predator (such as a lion) by initial bursts of great speed. Lions do not pursue their prey at speed for long, up to a maximum of 100-200 metres. (Smithers 1983:379; Walker 1983:1086). Hendrick's zebras clearly do not expect this ineluctable pursuit.

4. Hendrick only continues his pursuit until the moment he can overtake a flagging beast, seize it by the tail, fling it off balance to the ground, and use his hunting knife. The beast is allowed to resume flight, only to be stabbed again until it collapses from loss of blood (*ibid.* :263).

5. Hendrick does not seem to be exhausted by his venture, but is very matter-of-fact about it. There is no suggestion that he has reached the end of his tether, as his victim has. He could have continued his pursuit, but his possession of a steel knife made this unnecessary.

6. Hendrick reports his state of mind to Sir James Alexander:

> After three or four miles he is in perfect wind, and, as he expressed it, he was now unable to distinguish the heaven from the earth (*ibid.* :263).

However we interpret this - possibly as a 'runner's high'- Hendrick thinks it important enough to report that he experiences a change of consciousness. Normal distinction between "heaven" and "earth" have disappeared.

Running down and ritual - male puberty

In many Kalahari societies a young male cannot marry until he has proved himself as a hunter, able to provide for his wife and family.

> Among the Northern and Namib Bushmen, indeed, it is obligatory on the bridegroom that he should kill a head of big game and present it either to the bride or her mother at the marriage feast. (Schapera 1930: 105).

The San boy's first kill is marked by a rite of passage into manhood and so into spiritual membership of the tribe (Dornan 1925:125; Biesele 1993:123).

Apart from the rite of passage, running down may well have had other 'religious' functions where the purpose is to secure the blood of the animal for a symbolic act of communion such as Lewis-Williams and Dowson (1989) have persuasively advanced as part of the ritual killing of the eland. The emphasis on ample blood supply in the sacred and potent paintings is marked (see particularly Lewis-Williams 1988:4; Lewis-Williams & Dowson 1989:36; Jolly 1986:41).

ALTERED STATES OF CONSCIOUSNESS EXPERIENCED BY HUNTERS

We now move from physiological to the neuro-psychological aspects of the hunt. Although Hendrick's body remains an extraordinarily efficient smoothly functioning running machine, his mind is experiencing an unusual condition. It is to be regretted that Sir James did not describe this aspect of the runner's experience with the detail he devoted to his bodily movements.

His report that he was now unable to distinguish the heaven from the earth (Alexander 1850:263) does invite a brief glance at what is now a flourishing field of research on the effects of sustained physical exertion on the mind. (Dowson & Lewis-Williams 1994:213). A good starting point for the relationship between dance (in which sustained physical exertion occurs), and change of consciousness is Thomas(1960:127).

Noakes (1987:259) quotes the results of a survey of the psychological benefits of running as reported by a sample of 424 runners (Callen 1983). 69% Experienced the "runners' high" and 56% experienced a "trance or altered state of consciousness".

There is no reason to doubt that San hunters were subject to the same mental experiences. "The 'high' was described as a feeling of euphoria with a lifting of spirits, increased (259/260) creativity, and a sense of well being, usually occurred in the second half of the run".

Motivation of runners

The first point, which cannot be overstressed, is the motive of the runner. The frame of mind of a marathon runner, as Bruce Fordyce has pointed out to me (pers. comm.), cannot be compared with that a runner who runs simply to keep fit, nor with he/she who runs merely to achieve what is known as "runner's high". The experience of regular runners who get hooked on runner's high, does, however, support the general thesis that protracted physical exertion can result in a generally pleasant state of mind. There is no evidence that Khoisan indulged in such therapeutic fun-runs. Might there not,

however, have been a marginal similarity with the endless exhausting circular dance round the fire?

What was the shaman's motive for running down the zebra? One possibility is, as in the case of the eland, to secure its "holy" blood. It is therefore germane to remind ourselves that one of the unquestioned roles of the shaman is as healer, who bleeds from the nose and uses blood for healing purposes. The trance dance is not only a therapeutic social event, but also leads to healing laying-on-of-hands, and sneezing of blood. In certain circumstances blood is smeared on faces. The assumption has been that it is usually trance-induced human blood. It has been suggested (Butler 1997) that in many cases it is "snuff induced" human or animal blood.

But it may be useful to point to some medical research which has been done quite independently of rock art, nose-bleed and running down, into the change of consciousness induced by a controlled experiment on the healing effects of running on depressed people. In "The Psychology of Running" (Sacks 1981), dealing with the therapeutic effects of running on depressed people Greist, Klein and five others provide in "Running through your mind" a good starting point. On pages 18 and 19 they summarise the effects under nine headings. Under heading seven we learn that patients report that "running provided a reliable means of lysing (sic. losing?) symptoms of anger and anxiety, as well as depression". All subjects who ran felt some sort of "good feeling" during the run...". More important is heading eight. "Consciousness alteration ... while not available to the beginning runner, the state is described by experienced runners as a very positive, creative, less conscious, and more insightful interlude which is so addicting that many runners find it difficult to stop running even for a single day".

Mandell takes us considerably further in "The Second Wind" (Sacks 1981:211-223) where he tells us of his own changing states of mind (words in brackets and underlinings are ours):

> Thirty minutes out, something lifts, legs and arms become light and rhythmical (dance) ... The fatigue goes away and feelings of power (potency) begin ...
>
> Then, some time into the second hour comes the spooky time (hallucinations). Colours are bright and beautiful, water sparkles, clouds breathe and my body, swimming, detaches from the earth. A loving contentment invades the basement of my mind and thoughts bubble up without trails ... A cosmic view and peace are located between six and ten miles of running (Sacks 1981:211).

The state of consciousness in the shaman/hunter

Recalling the accounts of trance dancers of their states of awareness, it seems reasonable to consider hunters going through analogous neuro-psychological changes. We recall the statement of Hendrick to Alexander (1858:263), he was now "unable to distinguish the heaven from the earth". One of the attributes of this 'runners high' is a universal general benevolence.

The hunter would be filled with "loving" focussed on his quarry. There has always been this ambivalence in the hunter. He loves the thing he is pursuing to its death, because, quite apart from the gratification of runner's high, and the satisfaction of success, his quarry is usually life - giving food, he loves it as he must love his own life and that of his kin.

> In his "Meditations on Hunting" Ortega Y. Gasset makes the point that hunting (unlike violence) is never reciprocal: the hunter hunts and the hunted tries to escape. A leopard at the kill is no more violent or angry than an antelope is angry with the grass it eats. Most accounts of hunters emphasise that the act of killing is a moment of compassion and reverence: of gratitude to the animal or consenting to die (Chatwin 1987:228).

But the shaman is not an ordinary hunter. "There are many kinds of shamanistic activity. This variety was explored in "Believing and Seeing", where healing, game-control, extra-corporeal travel and rain making were described in some detail..." (Dowson & Lewis-Williams 1994:212). What follows demonstrates his control of game and his access to healing blood. It is suggested that as "runner-down" he shows his access to such potency, such magical power, that he can make his quarry give up its blood without resort to killing it.

In a hunter-gatherers' world hunted animals normally die from known, explicable, pragmatic causes, from wounds inflicted, by weapons, like Hendrick's knife, or by poisons which work to fatal effect from the inside. But the animal who has been run down acknowledges the superiority of his pursuer by voluntarily lying down and surrendering his life to him. San hunters could only ascribe such a death to the spiritual superiority or sovereignty of the pursuer. Such a death would be proof of the shaman's power. He was potent enough to master the animal sacred to his people and the blood it surrenders would have been special because no violence had been caused to the sacred beast.

THE PHYSICAL RESPONSES OF ZEBRA TO RUNNING DOWN

We turn now to the contemporary approach to such a death. It will be based on and supported by Western scientific and physiological reasoning.

People have long since domesticated equids, and used certain varieties as pack or draught animals (donkeys) or for transporting themselves. In many societies this has led to a reluctance to eat equid flesh. Their mastery was taken a stage further when his collaboration developed to the point of sport - hunting on horseback, and horse racing. With these developments came the profession of the horse doctors (now veterinary doctors) to study the horse's diet and health, and selective breeding. And one of the frequent complaints with which they were faced particularly after races, was equine nose-bleed.

The first distinction that has to be drawn is elementary. Not all nose-bleeds (epistaxis) in mammals originate, as we have been inclined to assume, in the nose.

According to Ferraro (1982:395) in race horses there are three sources of nasal haemorrhage.

1. The nasal and sinus passages

Bleeding from these areas is unrelated to exercise, is comparatively rare, and produces only small quantities of blood. There is no connection with physical exhaustion.

2. Guttural pouch haemorrhage

"The guttural pouches are large mucous sacs in the horse, which are ventral (close to the belly) diverticula of the eustachian tube situated between the base of the cranium and the atlas dorsally and the pharynx ventrally" (Dorland's Illustrated Medical Dictionary).

"Bleeding from the pouches is caused by mycotic infections, *i.e.*, infections caused by various fungi. It usually occurs during severe winters where animals are housed indoors".

The animals may suffer from incidents of nose-bleed, with large bodies of blood issuing from the nostrils. This is a serious condition, and is usually fatal. There is no connection with physical exertion (Ferraro 1982:395).

3. Pulmonary haemorrhage

Pulmonary haemorrhage is almost always induced by strenuous exercise and is most common in race horses. Until fairly recently it was assumed that the source of the bleeding in race horses was in the head, because, as in people, "any blood from the lungs was always frothy because it was mixed with air and tracheal secretions. However, it was subsequently demonstrated that, because a horse's lungs are ventral (at the same level as) the head, blood pools (gathers) in the major bronchi, and rolls down the trachea and out of the nostrils when the animals lowers its head ..." (Ferraro 1982:397). "Pulmonary bleeding does not appear as frothy blood and is not generally coughed up" and "pulmonary haemorrhage should be suspected in animals with sudden unexpected fatigue during a race" (Ferraro 1982:396).

Donaldson (1991) goes into the causes of the pulmonary bleeding with details which we do not need here. He corroborates the fact that "... in the United States more than 75% of equid athletes are reported to suffer from exercise-related haemorrhage of the respiratory tract". He also corroborates the recent acceptance of the lungs, and not the nose, as the source of the bleed. "In 1981, the term exercise-induced pulmonary haemorrhage (EIPH) was introduced" (Pasco *et al.* 1981). The acceptance of the acronym (EIPH) in veterinary circles has become general since 1981.

Pfaff (1976) gives an statistical account of nose bleeding among race horses in South Africa, which corroborates the correlation between extreme exertion and nose bleed. Pfaff (*vide* Cook 1974, Equine Veterinary Journal 6(2):45) states that "when blood appeared after the race it normally coincided with the moment when the horse lowered its head to the ground - thus supporting his contention that the blood comes from the lungs".

We are now in a position to look at the Later Stone Age zebra paintings. First, a picture of a zebra under attack. Zebra mares are normally very protective towards their foals, and this means slower running, which permits hunters to isolate them and their foals. We show a good depiction of this drama, from Zimbabwe (Fig. 2).

Garlake's caption reads, "Hunters shoot a zebra. It is surrounded by unintelligible signs, the large dots perhaps signifying blood. Unintentionally, the zebra calf next to it was not completed; two legs still had to be added. Bindura".

A different reading is possible. The zebra mare cannot run for her life, because she has a young foal. The hunters with bows and arrows are pursuing her, and have already succeeded in implanting arrows in her thigh and chest. The 'unintelligible signs' might not signify blood but two common hunters' weapons; the hard-flung fist-sized stone and the throwing stick. Little attention is paid to the foal because the hunters know it will not leave the mare. There is no nose-bleed. The elevation of her head should be noted.

This next picture (Fig. 3) of an isolated zebra provides a thought-provoking contrast.

"A zebra with lowered head, bleeding from mouth and nose. Mumurgwe." Note the posture of the front legs. They seem to be placed apart. The body leans forward as if the beast is coughing.

Our next illustration (Fig. 4) presents a further stage in the drama, if we accept that the animal is, in fact, a zebra. Woodhouse thinks it could be an antelope. The zebra has collapsed, and the stream of blood is profuse. It is being watched by a single, armed but unaggressive man, whose posture is hard to determine. It seems as though he is approaching with delicate dance-like steps.

One way of interpreting this painting is as follows. The man is the shaman hunter, waiting for the beast to die. He is in a position to kill it, but (unlike Hendrick) he does not use his weapons; neither his spear nor his bow and arrows. Yet he displays these as if to make it plain that he has not found it necessary to use them. There is certainly no evidence that he has used them on the nose-bleeding animal.

What is his state of consciousness at this moment of the death of his quarry? Hunter-gatherers inhabit an animistic world where there an absolute division between himself and animal does not exist. The categories do exist but the boundaries are vague and flexible. "It was thought that a link existed between him (the hunter) and his prey: the whole life of the animal was linked to his in this final crisis (of the kill)" (Lewis-Williams 1981:56) (words in brackets added).

Subject to the reliability of the deductions as to dating advanced by Walker (in Dowson & Lewis Williams (1994:122) it seems that the Zimbabwean hunter-gatherers may have accorded a special status to the zebra similar to that accorded by to the eland by the San in KwaZulu-Natal several centuries later. In both regions

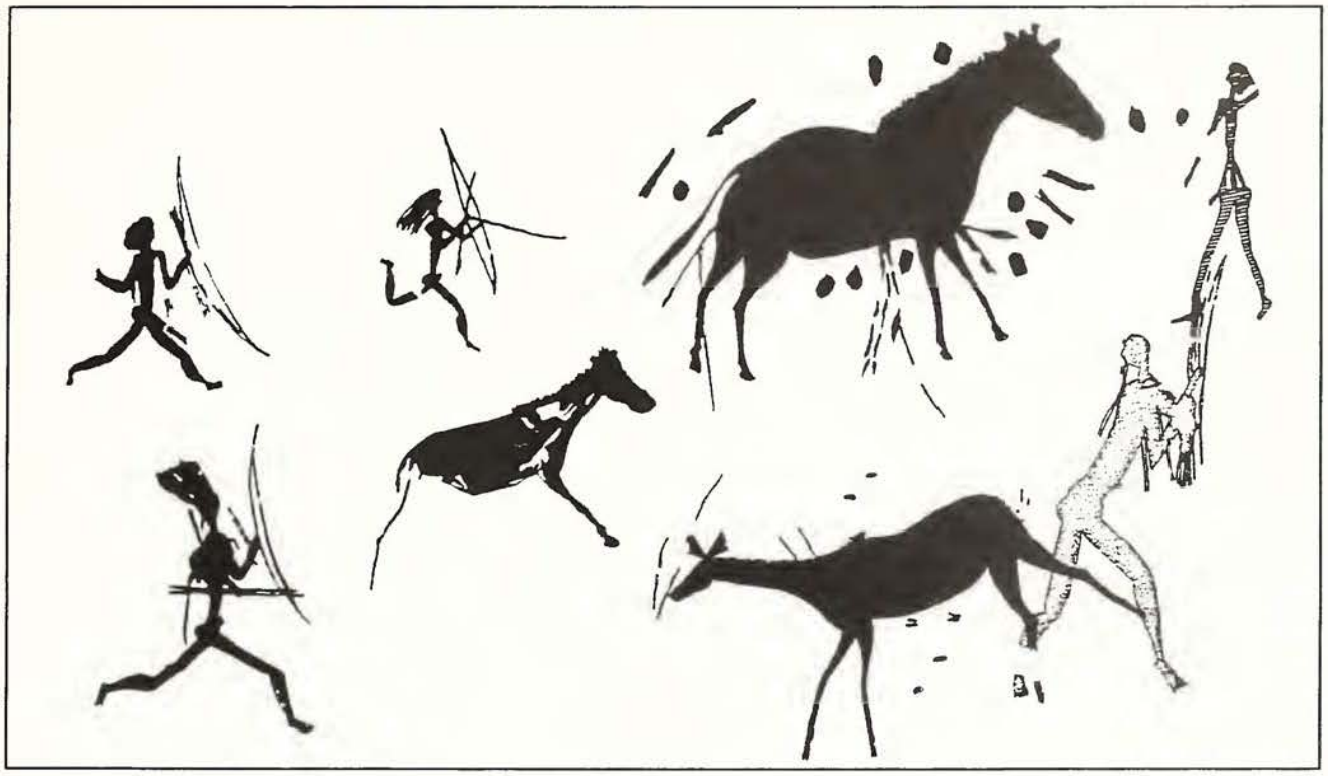

Fig. 2. Zebra under attack (after Garlake 1987).

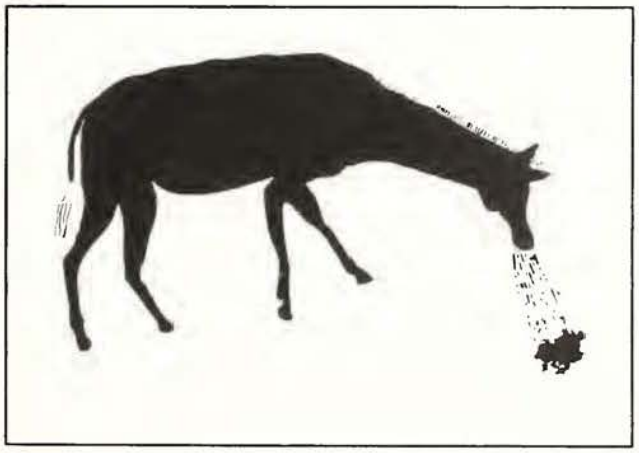

Fig. 3. Zebra with lowered head, bleeding from the nose, Mumurgwe (after Garlake 1987).

the chosen animal is frequently depicted as bleeding from the nose without evidence of any wounding of the body by weapons.

There is, however, a major difference. In the pictures of the zebra no one is near the animal. Any approach to a zebra's head would be dangerous as it is capable of biting a man's arm off. But no approach is necessary. The animal has been run to death after a long chase.

This does not apply to the eland, who is easily run to a standstill. Unlike the zebra an eland does not bite, and shamans are shown very close to their heads, in order to apply, we suggest, the substance that will cause them to bleed from the nose. Why? Because an eland driven to extremity, does not usually bleed from the nose, he may be overtaken by his pursuers before such extremity is reached. Harris (1969:35) describes what happens. "... on being pursued they presently exhibited symptoms of distress, and turning their beautiful heads, repeatedly over their plump shoulders to learn if they had not shaken off their persecutors. Finding us still at their heels, they shortly separated; their sleek coats turned first blue, and then white with froth, and foam fell in bellropes from their open mouths, and the perspiration streamed from their lusty sides".

No mention whatever of blood. But as the life of all animals is generally accepted as being in its blood, and as the sacred animal's blood is needed for healing, and also as a component of the medium of the magical paintings, bleeding must be induced (Butler 1987). No such inducement is required in the zebra.

If accepted, this proposal supports a strong case for the shaman's motives: to demonstrate his mastery over game, and to secure the sacred blood of the animal for healing and magical purposes. Also, by refraining from using any weapons of violence he proves his access to sacred potency to which the animal itself submits by surrendering its life blood.

There is such empathy, such identification that the shaman also 'dies' with his victim. It has been suggested that the way he proves this to himself and others is to smear his nose-mouth region with his victim's blood. If a group of hunters were involved, they would do likewise. It is a celebration not only of his/their part of the running down or kill, but of a blood brotherhood with each other, and their sharing of the potency which the

Fig. 4. Illustration from Spozwi, Matopos (after Lee & Woodhouse 1970).

animal exhales as it dies.

> The Kalahari San say that when an eland dies, it releases its potency and the whole place becomes embodied with power. The hunters can then harness this potency... (Lewis-Williams 1988:7).

This may throw light on an enigmatic picture (Fig. 5). The caption continues. "A conceptual relationship between these two seemingly incongruous images should be sought". Throughout this paper we have assumed that a shaman/hunter believed that there was a special, intimate relationship between him and his prey. We have argued that at one time in Zimbabwe the zebra may have been to the hunter-gatherers what the eland were to the Southern San.

If we examine the juxtaposed images in Figure 5 we observe;

The Zebra

1. The zebra is not bleeding from the mouth/nose.
2. The zebra has no weapons stuck in it or signs of bleeding.
3. The zebra is immobile. There is nothing about its legs, neck or spine to suggest movement. It could be lying down.

The Man

1. The man is lying down.
2. The man's immobility is emphasised by the unusual drawn up position of his legs. If extended, he would appear as a thin tall figure, but still recumbent.
3. The man is unarmed - neither bow and arrow or spear is near him.
4. There is a suggestion of a shoulder cloak. The hand behind the neck may suggest relaxation or even sleep.

The man has assumed a position in which he cannot run, and is weaponless. The zebra is stationary, showing no signs of flight. These passive postures in such proximity are not a depiction of any normal state. They are a shaman's vision, we suggest, of his spiritual relationship with his sacred animal.

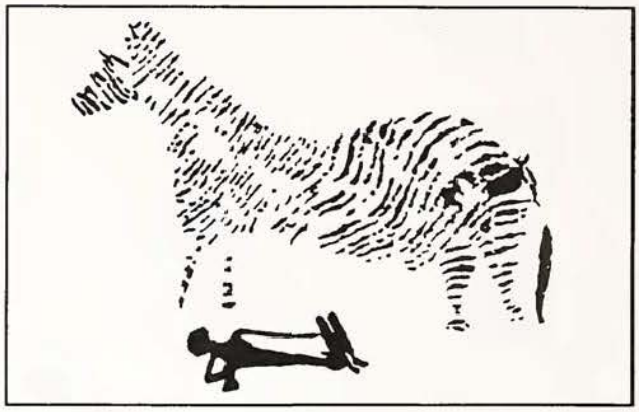

Fig. 5. A zebra juxtaposed with recumbent figure (after Garlake 1995).

We suggest that this is a shaman's presentation of his normal relationship with the "totem" animal.

We suggest that the zebra's legs were originally longer. In mountain zebra the stripes disappear below the knees. In the original condition this missing portion would have been painted in white, a colour known for its impermanency. The original of this would have been to relate the two figures even more intimately. Patricia Vinnicombe (pers. comm.) suggests the picture may be of a shaman "dreaming" a zebra.

Under exceptional circumstances, however, the shaman has to prove his superior potency, and the stationary relationship changes into pursuer and pursued. But no violence is used. The shaman's longer staying power makes the animal give up its life, symbolised in blood. This would have been seen in magical, spiritual terms by the hunter-gatherers, not biological or physiological as we have attempted to show.

CONCLUSION

Medical evidence supports the view that paintings of zebras bleeding from the nose, as represented in certain examples of Zimbabwean rock art, depict the final stages of the running down of a zebra.

An answer to the riddle which such pictures pose may be found on two levels:

Physical

Man has the physical stamina to pursue a zebra until its pulmonary systems breaks down, and it collapses, releasing a quantity of blood which has gathered in the guttural pouches.

Spiritual

Possibly encouraged by the changed state of

consciousness which protracted exercise may produce, shamans may have believed their stamina to be evidence of their access to superior spiritual potency. The surrender of its life blood by his quarry proves the shaman's possession of a superior potency. The possibility should be considered that blood secured without wounding the sacred animal has a special significance.

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